DOCUMENT RESUME

ED 286 400 HE 020 654

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TITLE Data Base Development for Effective Enrollment Management.
PUB DATE Jul 87
NOTE 33p.; Paper presented at the Annual Conference of the Society for College and University Planning (Washington, DC, July 19-22, 1987).
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Academic Persistence; College Applicants; College Planning; *College Students; *Databases; Educational Benefits; Enrollment Influences; Enrollment Projections; *Enrollment Trends; Higher Education; *Longitudinal Studies; *Management Information Systems; Student Attrition; *Student Characteristics; Trend Analysis
IDENTIFIERS *State University of New York Coll at Oswego

ABSTRACT

The design and development of an enrollment management database at the State University of New York College at Oswego are described. A basic premise is that the concept of enrollment management has begun to replace the traditional admissions model. Enrollment management helps the college identify existing and potential markets; determine resource allocation and programming strategies needed to effectively serve its clientele; and forecast enrollment and rates of retention/attrition for various student cohorts, as well as determining the causes of attrition. The primary purpose of the enrollment management database are: to integrate longitudinal external and internal environmental trend data; and to track students from initial contact, through application, enrollment, retention, graduation, and alumni followup. The database provides information that covers: reasons the college is attended; characteristics of matriculants, persisters, and dropouts; and personal and/or institutional variables that affect enrollment, retention, attrition, and the benefits accrued by students as a result of attending the college. Data components of the database are outlined. (SW)

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Data Base Development for Effective Enrollment Management

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Paper Presented at the
July 19-22, 1987 Annual Conference of the
Society for College and University Planning
Washington, D. C.

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Data Base Development for Effective Enrollment Management

Over the past decade the issue of enrollment management has increasingly become a cause for serious concern among higher education managers and planners. Declining enrollments, initially projected in the 70s, remain as the major reason for such concern. Projected enrollment decline has been explained largely in terms of declining high school graduates (Crossland, 1982; Breneman, 1982), and a variety of changes in students' characteristics, values, and needs (Hodgkinson, 1980; Henderson & Plummer, 1978; Jackson & Weatherby, 1975; Centra, 1980).

Colleges and universities today in fact are confronted with a variety of changes in clientele that demand attention. The formulation of an appropriate and effective strategy is extremely important to the survival and viability of institutions especially as enrollments have important and direct implications for the financial stability of institutions of higher education. Lower enrollments often translate into decreased resources. Decreased revenues, in turn, cause faculty retrenchment and/or program cuts. Moreover, financial instability may severely limit the ability of

institutions to attract qualified students and/or effectively respond to the needs of new clientele.

As the concern for student enrollment has increased, much pressure has been placed on the admissions office, which as a result of past stability and growth, functioned primarily to generate inquiries, screen and evaluate applicant credentials, and enroll students. Since enrollment management is generally perceived in terms of efforts to increase enrollments, marketing strategies and changes in admissions standards and policies, have emerged as perhaps the most prominent means of responding to the changing situation (Campbell & Spiro, 1986; Doemann, 1976; Santos, 1980; Litten, Sullivan, & Brodigan, 1982).

Enrollment decline has also prompted many institutions to lower admission standards, adopt open admission policies and/or turn to sophisticated marketing schemes focused mainly on the improvement of institutional image. The exclusive implementation of these activities results in the attraction of a growing population of underprepared college students, and a growing population of "non-traditional" students with very different characteristics, values, and needs. If institutions are not prepared to deal with the special needs

of these groups, students become frustrated, and thus forced to dropout from higher education.

The practice of the "band-aid treatment" is effective only to the extent of increasing the number of entering students. However, maintaining stable overall enrollment remains as a serious problem.

While communication, marketing, and public relations continue to be important, they are no longer sufficient as a means for effectively managing enrollments. Institutional managers and planners are coming to realize that retaining students is just as important as attracting them. The need to manage college enrollments from the point of initial student contact to the point of graduation has necessarily evolved as the significant foundation of enrollment planning (Hossler, 1984; Glover, 1986). As a result, the concept of enrollment management has begun to replace the traditional admissions model.

Enrollment management is more than attracting students. It also includes efforts to retain and facilitate the achievement of students goals. The notion of "fit" between the student and the institution is significant in this process (Tino, 1975; Pascarella & Chapman, 1983; Munro, 1981). An effective enrollment

plan requires an assessment of the institutional environment (both social and academic) and the identification of students with interests and characteristics that are likely to be a good match with that environment. Certain environmental factors can and should be altered relative to the needs of a rapidly changing student market and new clientele.

There is also one other area that is a part of the necessary foundation for enrollment planning: knowledge of the outcomes of higher education. Increasingly, institutions are being asked to articulate the outcomes of higher education to students, parents, and society as a whole. Enrollment managers must be able to make a strong case for the institution they represent. They should be well aware of the impact of the college on students, and how students change during the college years. Also, they need to understand and articulate the economic and non-economic benefits that students gain as a result of the college experience. The results of these investigations can be particularly significant for both recruitment and retention programs (Endo & Bittner, 1985; Banta, 1985; Hossler, 1984).

The solid enrollment management plan is designed within the context of an institution's overall planning

process, and begins with the institution's mission and an assessment of what the institution is or wishes to be. If enrollment management does not begin with assessment, it will ultimately be rendered a fruitless process. Effective enrollment management is an integrated, institution-wide effort, rather than segmentary efforts (Hossler, 1984, 1986). It requires a top-down management approach. An enrollment planner must be able to project enrollments, influence the college-choice process, advance programs to retain students, and measure relevant institutional outcomes. All of these activities rely heavily on planning and an adequate institutional data base. The data base has to facilitate answering the following questions:

- Why do students come to the institution?
- What are the characteristics of matriculants, persisters, and dropouts?
- What personal and/or institutional variables affect enrollment, retention, attrition, and the achievement of students' goals?
- What are the characteristics of the college's environment, and how do these affect student enrollment?

- How do students benefit from attending the institution, and to what extent do they achieve their goals and aspirations?

Data base development is a critical yet often neglected component of enrollment management efforts. Although there is a large body of research in areas linked to enrollment management, it is sufficient only to the extent of providing a frame of reference and some general guidelines. Individual institutions need to develop an integrated data base and decision support systems that can be claimed uniquely their own.

In response to these needs, the Office of Institutional Research and Data Base Management at SUNY College at Oswego initiated the development of an integrated system which provides the College with longitudinal data needed for effective enrollment management.

This paper presents a conceptual overview of the design and development of the data base, and suggests ways for the collection and utilization of data for planning and decision making. Special consideration is given to the need to design and implement such a system within the larger context of institutional planning.

State University of New York College at Oswego (SUNYCO)

The State University of New York College at Oswego is a multipurpose college of arts and sciences, and a mature member of SUNY's educational system. SUNYCO was originally founded in 1861 as the Oswego Normal School by Edward Austin Sheldon. The institution became Oswego State Teachers College and one of SUNY's charter members in 1948. The name was changed to SUNYCO in 1961.

While maintaining high standards as a center for teacher education, the College began to broaden its academic perspective in 1962 when it became one of the Colleges of Arts and Sciences of the State University of New York.

The College has 31 academic departments which function under three academic divisions: Professional Studies, Arts and Sciences, and Continuing Education, Public Service, and Summer Sessions. Undergraduate and graduate programs are offered in 68 fields.

Roughly 8300 students enroll at SUNYCO every year. The undergraduate student body is generally traditional, with more than 80% between 18 and 22 years of age studying full-time toward a degree.

Goals of Enrollment Management

Strategic planning and effective enrollment management are critical to the survival, growth, and improvement of the College. In a mere 26 years SUNYCO has grown rapidly; in fact, it has tripled in size. As the College's enrollment has grown, its academic programs, staffing, physical plant, and annual operating budget have also increased. Now faced with substantial demographic change, the College has become increasingly vulnerable to fiscal stress, especially in light of SUNY's enrollment driven budget process. Like all state funded institutions, it must meet projected enrollment targets in order to ensure the maintenance of its financial base. In addition, it must contend with SUNY mandated dormitory self-sufficiency requirements, taking into account the pattern of change in the demands, needs, and characteristics of prospective applicants. Coupled with this is the completion of major city projects, the closing of industrial plants, and the retrenchment of traditional occupational classes that may impact not only enrollment, but also the ability of the College to fill its dormitories due to declining rental rates in surrounding neighborhoods. At the same time, although the number of applicants,

admitted students, and rate of yield have remained relatively constant for the past five years, there has been a pattern of changes in the demographic mix of the student body. For example, the number of students that are part-time, female, and older working adults is steadily increasing. In light of these changes enrollment management has become essential in the College's effort to meet the demands and expectations of new clientele.

Enrollment management has been defined as any institutional attempt to influence the number, mix, and quality of students through recruitment and retention strategies (Kemerer, Baldridge, & Green, 1982). Institutions of higher education can influence the size and quality of their enrollment as many external factors (e.g. the number of high school graduates, institutional pricing in public colleges/universities, governmental policies on student financial assistance, etc.) are significantly beyond their control.

Within the context of the above definition, the goals of enrollment management are:

1. Increase the accuracy of enrollment projections.
2. Increase the College's market share of pros-

pective applicants.

3. Increase the yield of admissions from the number of accepted applicants.
4. Maintain an enrollment mix that is consistent with the College's mission as a public-supported institution of Arts and Sciences, considering both academic values and enrollment demands.
5. Within the limits of available resources, provide high-quality academic programs and experiences that are responsive to the needs of students, and at the same time consistent with the College's mission and standards of academic excellence.
6. Describe, predict, and improve student retention, and the achievement and satisfaction of students and alumni.

The achievement of these goals rely heavily on integrated, comprehensive, and timely institutional data. The development and improvement of such a data base has been assumed as both significant and primary to the process of enrollment management and planning at SUNYCO.

Design of the Enrollment Management Data Base

The primary purposes of the enrollment management data base are: (1) to integrate longitudinal external and internal environmental trend data; and (2) track students overtime, from initial contact, through application, enrollment, retention, graduation, and alumni follow-up.

Figure 1 presents an overview of the general conceptual framework upon which the enrollment management data base is developed. This framework outlines the data components that are essential for developing an effective strategy for enrollment management.

Environmental Characteristics

College enrollments are significantly influenced by the surrounding environment. Therefore, enrollment management has to start with an assessment of the environment within which the institution must operate. An institution's environmental characteristics may be categorized as: (1) external-- characteristics, changes, and trends (e.g. high school graduates, socioeconomic factors, etc.) outside the institution at the national, state, and local levels; and (2) internal--the environmental characteristics of the

institution itself. Changes in the institution's environment, particularly those that are external, are significantly beyond its control. Nevertheless, an understanding of environmental characteristics is critical since it provides the context for the development of enrollment strategies.

Assessment of the external environment requires data regarding the trends of demographic characteristics, (including socioeconomic status), and the demand for higher education within the institution's primary market. Although the institution has no direct control over these changes, a thorough understanding of them is essential to the effective management of enrollment since they affect both the size and mix of student enrollment, and since they require the delineation of specific enrollment management strategies.

The Office of Institutional Research and Data Base Management provides the College's Enrollment Management Task Force information necessary to facilitate such an assessment. The actual and projected number of high school graduates from the College's primary market are obtained from the State Education Department which often works in conjunction with SUNY institutions. Data regarding population, age, birth rate, ethnicity,

etc. are compiled from various sources e.g., U.S. Bureau of Census.

Assessment of the internal environment is also of prime importance. The internal environment of the institution--characteristics, resources, and competition--adds to the frame of reference for enrollment planning. Its impact on institutional market share, retention, and outcomes is tremendous. Many aspects of the internal environment can be influenced and/or altered to fit and to respond to the demand of changes in the external environment and the demand of changes in the student body. Therefore, an assessment of the internal environment provides another dimension to the foundation required for enrollment management.

Because of the importance of the internal environment to enrollment management, data and information are gathered on a continuous basis from the SUNY Applications Processing Center data base. These data describe the system's prospective student population and SUNYCO's applicant pool. The information gathered yields comparative data for SAT scores, class rank, geographic origin, as well as other SUNY institutions applied to by prospective students. Comparison of prospective student data and information to the Student

Data File (actual enrollment/registration data for a given semester) provides a basis for evaluating the College's competitiveness within the state system. In addition, a routinely administered survey designed to measure institutional variables affecting students' choice of a college, assists the identification of colleges and universities outside of SUNY that are major competitors. This survey also provides information regarding institutional variables that influence students' final decision to attend SUNYCO or other institutions. These data assist an evaluation of the College's image, students perception of the institution, and the identification of those aspects of the College that can and need to be improved.

As a part of the environmental assessment effort, particular attention is given to institutional resources. Information generated through three major systems--Personnel Data System (PDS), Student Data File (SDF), and the Physical Space Inventory (PSI)--are gathered to facilitate a comprehensive description of institutional resources. Taken together, these systems yield data about faculty and staff, instructional and non-instructional costs, the utilization of available physical, financial, and human resources, and depart-

mental resource utilization, productivity, and workload.

Institutional Student Body

One of the keys to effective enrollment management and planning is the institution's capacity to monitor and manage the enrollment process. The management of this process depends heavily on accurate and timely information about students' characteristics, needs, and interests. Such information helps the enrollment manager to project, influence and increase the institution's market share of the prospective student population. This information is also very useful in the assessment of retention programs, program/activities review, and the development of a plan to effectively serve and respond to an evolving student population.

Data that describes the prospective student population in terms of student personal characteristics (e.g. age, gender, ethnicity), academic background (e.g. SAT, high school class rank), curriculum interests (e.g. intended major, program, degree), and other needs and preferences (financial needs, housing, remedial programs, etc.) are gathered on a continuous basis. The major source of this information is the

Admissions Processing Center data base. In addition, a survey of admitted students provides useful information not only about the College's competitive position and image, but also about students' needs and interests. The questionnaire asks accepted students to indicate where they have applied, whether they have been accepted for admission, and which institution they decided to attend. Some questions in the survey ask students to indicate whether particular institutional variables (e.g. specific academic support services, cultural programs, recreational programs/facilities, social life, etc.) were factors in their college choice, and to indicate the degree of influence and the extent to which the selected college was perceived to be responsive to their demands.

Follow up analyses of the information about prospective students admitted, enrolled and those admitted but deciding not to attend SUNYCO provide a basis to identify the characteristics of the College's student population as well as it potential market. Such analyses help to predict the yield of enrollment from the number of accepted applicants, to identify type of students that tend to choose SUNYCO, and to increase the accuracy of enrollment projections. Information of

this nature serves as a significant foundation for the development of recruitment and retention programs.

Enrollment Characteristics

The enrollment characteristics of an institution is a product of both the student body and institutional programs and activities. A comprehensive understanding of enrollment characteristics is important as it provides important information for financial management, resource allocation, faculty workload management, and program offerings and scheduling. The effectiveness of these management functions is intricately linked to the enrollment planning process.

SUNYCO's management team and departmental chairs are routinely provided with timely historical information about enrollment characterisics. These data are obtained from the Course and Section Analysis (CASA) and Student Data File (SDF) systems. These two systems provide a variety of useful data that describes: (1) semester enrollment in terms of student headcounts, student FTE, and semester credit hours generated; (2) credit hour generation by department, course level (i.e. lower vs. upper division and graduate vs. undergraduate), student level (upper vs. lower division,

undergraduate vs. graduate), and class (freshman, sophomore, junior, senior, or beginning and advanced graduate students); (3) instructional workload of academic departments (i.e. students by major, student/faculty ratios, faculty weekly contact hours, credit hour enrollment per FTE faculty); and (4) instructional costs at the department and division levels.

The longitudinal enrollment data described above improves the capacity of the College to predict enrollment demand, and to monitor any significant increases or decreases that may require sufficient lead time to make appropriate adjustments in curricula, faculty work loads, and the allocation of resources.

Institutional Impact

The planners and managers of higher education institutions also need to be knowledgeable about the outcomes of their institutions as such knowledge is necessary to the formulation of institution-wide planning in general and, enrollment management and planning in particular. The assessment of institutional impact provides important measures to evaluate the effectiveness of an institution's enrollment management program in terms of both design and implementation. It further serves as critical feedback to the process of program

monitoring, evaluation, and revision.

The assessment of institutional impact is a complex task that should be carried out within the context of an institution's mission and goals, environmental characteristics, and available resources. It can become even more difficult, and certainly fruitless, in instances where the institution lacks well defined goals and the kind of data base needed to evaluate its own existence within the larger context of the surrounding environment. An institution's unique characteristics (including its mission and goals) necessarily affect its student body composition, enrollment characteristics, and thus institutional outcomes. To assess SUNYCO's outcomes, a wide range of data are included in the design of the data base. These are briefly discussed below.

Information about SUNYCO's graduates are maintained in the Degree File (DF), designed by the OIRDBM. This file includes data about SUNYCO's graduates, including the type of degree received (BS, BA, MEd, MA, Certificate of Advanced Study), academic programs completed (first and second majors and minors), personal characteristics (gender, ethnicity, age, etc.), date of entry to the College, and the date of graduation.

Longitudinal enrollment data along with data from the Degree File helps the College to monitor student retention and attrition. The student tracking system provides information about students by entry status (freshman, upper and lower division transfer), achievement of degree/program objective, persistence, and disqualification. Since this information is gathered and analyzed continuously, the results can help to determine the time that students typically need to complete a program, as well as the critical period during which a student is likely to withdraw from the institution.

The Office of Student Affairs also administers a survey to obtain information about students who withdraw from the College. The survey asks students to state the reasons for their decision and whether or not any particular College life experience is a factor. At this point, the survey is administered only to those who officially withdraw. However, a system is being developed to contact those students that simply leave the institution without any advance notice or any official communication.

Student academic outcomes and achievement data are gathered from the Grade Distribution File. This file

contains information about student semester grade point average (GPA) and cumulative grade point average by student, department, faculty, student level and class. Data are also available concerning the academic honors status of students (e.g. Dean's List, President's List, etc.).

Student satisfaction and their perceptions of the college experience are also important outcomes measures. Student satisfaction data are obtained through the local administration of a survey coordinated with SUNY Central Administration. This instrument requires students to evaluate the quality of life at the College, and degree to which they have attained their individual objectives. Demographic and other data makes it possible to evaluate student satisfaction by gender, student level, ethnicity, living arrangements, extracurricular activities, and personal objectives.

Finally, the Survey of Graduating Seniors is designed to obtain data about student perceptions of their academic departments, the College's student services, academic and non-academic facilities and programs. This survey focuses only on graduating seniors and measures student satisfaction with the college

experience. It further solicits information about future plans, particularly those that are definite, and the degree of success achieved relative to students' personal objectives (e.g., getting a job, being admitted to a graduate program, etc.).

The latter part of the survey also yields measures to evaluate the career and personal achievements of alumni. This part of the instrument is geared toward collecting information about employment status (whether they are seeking employment and have been offered a job), the nature of the job or profession in which they intend to become engaged or are already engaged, and salary level. In addition, information about those who choose to continue their education, e.g. acceptance to a graduate program, type of institution and field of study are obtained.

Since this survey provides data only at time of graduation, and since a followup assessment of alumni is important, a tracking system is in the process of development to evaluate the personal and career achievements of alumni at strategic intervals after exiting the institution with a degree.

Summary and Conclusions

The purpose of this report has been to provide an overview of the conceptual design and implementation of the enrollment management data base utilized at SUNY College at Oswego in order to facilitate effective enrollment planning and management strategies. One of the basic underlying premises of this approach is that enrollment management and planning must be conducted within the larger framework of institution-wide planning and related assessment activities. In essence, enrollment management and planning is viewed largely as a process of assessment to the extent that it necessarily involves ongoing monitoring of the external environment in relation to institutional goals and objectives. Based on the outcome of these efforts, the institution is more readily able to accurately: (1) identify existing and potential markets; (2) determine resource allocation and programming strategies necessary to effectively serve its clientele; and (3) forecast institutional enrollment and rates of retention and attrition for various cohorts of students, as well as the causes of attrition and their subsequent affect upon institutional well-being.

The enrollment management data base indeed needs

to be a comprehensive one. Its focus should not be exclusively one of longitudinal enrollment data as this alone is very limited and fails to take into account the impact of environmental factors on an institution's enrollment. Therefore, the data base discussed herein is designed to provide information and data that can help to address questions concerning: (1) the reasons students decided to come to the institution; (2) the characteristics of matriculants, persisters, and drop-outs; (3) the personal and/or institutional variables that impact enrollment, retention, attrition, and the achievement of student and institutional goals; and (4) the benefits accrued by students as a result of the experience provided to them by the institution. Thus, in the last analysis, the effectiveness of an institution's enrollment management and planning process depends greatly on its ability to identify and delineate in operational terms not only its own goals and objectives, but perhaps more importantly, the personal goals and aspirations of its students and its market. In the absence of these data and information, attempts at enrollment management and planning are necessarily rendered fruitless and meaningless as an institution has no basis to state concretely the extent of its

effectiveness.

Recommendations

It is important to emphasize that there is no "canned" approach or methodology to the development of an enrollment management and planning data base as institutions differ widely in terms of purpose or mission, type, resources, and the environmental milieu within which it must operate. In light of this, it is almost certain that enrollment goals will vary to one degree or another from institution to institution. It is incumbent upon each institution to develop an integrated data base and decision support systems that can be claimed uniquely their own. The foregoing overview hopefully serves as a guide to institutions that have begun or intend to begin the development and utilization of an enrollment management data base.

Colleges and universities that endeavor to more effectively conduct a process of enrollment management need to employ a top-down approach. This is of primary importance for the following reasons: (1) from a political standpoint it conveys to internal constituencies the institution's commitment to tackle the problems and issues that it faces relative to enrollment; (2) it is at this level of administration that the

parameters for institution-wide planning are established; and (3) institution-wide planning guides both the structure and content of the data base. Regular and systematic cooperation and interaction at this level is necessary to ensure not only congruence of communication to institutional constituencies, but also the ongoing refinement of a data base that is of maximum utility to the process of institutional policy and decision making.

Front-line administrative offices, particularly those that provide student-related services, e.g. registrar, admissions, financial aids, residential life, etc., for obvious reasons need to be in close and regular contact with top-level administrators. Both front-line and top-level administrators need to be cognizant of the institutional research role since it is responsible for ensuring the availability of data and information to support the institution's planning initiatives and policy and decision making process.

It is important to emphasize that while the admissions office may be held directly accountable for the achievement of enrollment targets, they cannot meet these targets without the cooperation of other offices and constituencies. If certain initiatives are taken

in isolation, in all likelihood they will result in a "band-aid" approach that speaks only to the short-run problems of enrollment. Effective enrollment management can only occur by taking into account factors other than the need to increase the number of entering students. Ultimately, it is the broad process of planning and assessment that should guide enrollment management, and thus facilitate a healthy environment to achieve long-term institutional enrollment goals.

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Figure 1

ENROLLMENT MANAGEMENT DATA BASE